

MAY 03 2007

Knobbe Martens Olson & Bear LLP*Intellectual Property Law*3403 Tenth Street
Suite 700
Riverside CA 92501
Tel 951-781-9231
Fax 951-781-4507
kmoob.com**CONFIRMATION COPY WILL FOLLOW VIA:**

- ☐ MAIL
☐ INTERNATIONAL AIRMAIL
☐ COURIER
☐ E-MAIL
☒ WILL NOT FOLLOW
☐ HAND DELIVERY
☐ WITH ENCLOSURES
☐ WITHOUT ENCLOSURES

Facsimile Transmittal Sheet**Confidentiality Notice:**

The documents accompanying this facsimile transmission contain confidential information which may be legally privileged. The information is intended only for the use of the recipient named below. If you have received this facsimile in error, please immediately notify us by telephone to arrange for return of the original documents to us; and any disclosure, copying, distribution or the taking of any action in reliance on the contents of this faxed information is strictly prohibited.

TO: Examiner Junghwa M. Im
 FIRM: United States Patent and Trademark Office
 FACSIMILE NO.: (571) 273-8300 and (571) 273-1655
 FROM:
 DATE: May 2, 2007 TIME:

OUR REF.: MICRON.172A
 YOUR REF.: Appl. No. 09/945,065
 OPERATOR:
 NO. OF PAGES: (incl. cover sheet)

IF YOU DID NOT RECEIVE ALL OF THE PAGES PLEASE CALL BACK IMMEDIATELY
 OPERATOR PHONE NO.: (951) 781-9231
 FACSIMILE NO.: (951) 781-4507

MESSAGE:

3720943
0502072040 Main Street
14th Floor
Irvine, CA 92614
Tel 949-780-0404550 West C Street
Suite 1200
San Diego CA 92101
Tel 619-235-8550One Sansome Street
Suite 3500
San Francisco CA 94104
Tel 415-954-4114
Fax 415-398-12221901 Avenue of the Stars
Suite 1500
Los Angeles CA 90067
Tel 310-551-3450
Fax 310-551-34501114 Marsh Street
San Luis Obispo CA 93401
Tel 805-547-5380
Fax 805-547-5380

Darrell L. Olson*
 William B. Bunker
 Arthur S. Rose
 Ned A. Israelson
 Drew S. Hamilton
 John B. Spanga, Jr.
 Edward A. Schaller
 Gerard von Hoffmann
 Joseph R. Re
 Catherine J. Holland
 John M. Carson
 Karen Vogel Wolf
 Andrew H. Simpson
 Jeffrey L. Van Hooser
 Daniel E. Almen
 Stephen C. Jensen
 Vito A. Canuso III
 William H. Shreve
 Lynda J. Zadra-Symest
 Steven J. Natupsky
 Paul A. Stewart
 Joseph F. Jennings
 Craig S. Summers
 AnneMarie Kaiser
 Brentan R. Babcock
 Michael H. Trenholm
 Diane M. Reed
 Ronald J. Schoenbaum
 John R. King
 Frederick S. Borretta
 Nancy W. Vensko
 John P. Glazianlanner
 Adeel S. Akhtar
 Thomas R. Arno
 David N. Weiss
 Daniel Hart, Ph.D.
 Douglas G. Muehlhauser
 Lori Lee Yamato
 Michael K. Friedland
 Dale C. Hunt, Ph.D.
 Stacey R. Halpern
 Lee W. Henderson, Ph.D.
 Mark M. Abameri
 Jon W. Gurka
 John W. Holcomb
 Joseph M. Reisman, Ph.D.
 Michael L. Fuller
 Eric M. Nelson
 Mark R. Benedict, Ph.D.
 Paul N. Conover
 Robert J. Roby
 Sabing M. Lee
 Karoline A. Detaney
 Joseph S. Cianfrani
 William R. Zimmerman
 Paul C. Steinhart
 Eric S. Furman, Ph.D.
 Susan M. Nalland

Rose M. Thiesen, Ph.D.
 Michael A. Gulliana
 Ravinder N. Narula
 Bruce S. Lichtkowitz, Ph.D.
 John M. Grover
 Mallory K. De Merlier
 Brian A. Latof
 Amy Christensen Chun
 Mark J. Gallagher, Ph.D.
 David G. Jankowski, Ph.D.
 Brian C. Horne
 Payson LeMellieur
 Sheila N. Swaroop
 Ben A. Katzanellenbogen
 Andrew N. Merrickel, Ph.D.
 Thomas P. Krzeminaki
 Glen L. Nuttall
 Sanjivpal S. Gill
 Michael S. Okamoto
 Linda H. Liu
 James F. Harkenhalf
 Andrew M. Douglas
 Marc T. Morley
 Salima A. Merani, Ph.D.
 Jonathan A. Hyman
 Curtiss C. Osler
 Joseph J. Mallon, Ph.D.
 Sean M. Murray
 Christy G. Lee
 J. David Eversett
 Perry D. Oldham
 Jerry L. Hefner, Ph.D.
 Russell M. Jelde
 Abraham W. Chvazg
 Kyle F. Schlueter
 Zi Y. Wong
 Matthew S. Bellinger
 Mincheol Kim
 Deborah S. Shepherd
 Tirzah Abé Lowe
 Sharon S. Ng
 Elissore Nila
 Pul Tong Ho, Ph.D.
 Erik T. Anderson
 Jesse A. Rothwell
 Gregory A. Hermanson
 John N. Kandara
 Lauren J. Keller
 Ted M. Cannon
 Carol Plizel Cruz
 Josué A. Villalta
 Sheila R. Gibson
 Andrew I. Kimmel
 Curtis R. Huffmire
 Tina Chen
 Brenden Gingrich, Ph.D.
 Christopher L. Ross
 Don W. Anthony, Ph.D.

John G. Rickenbrode
 Christian A. Fox
 Eli A. Louts, Ph.D.
 Ryan E. Melnick, Ph.D.
 Yanna S. Bouris
 Philip M. Nelson
 Walter S. Wu, M.D.
 Katsuhiko Arai
 C. Philip Polier
 Marko R. Zoradic
 Derek C. Dalley
 Kathleen R. McKjian, Ph.D.
 Christopher T. Sweeney
 John F. Hest
 Kerry S. Taylor, Ph.D.
 Jason J. Jordine
 Jennifer M. Pascua
 Daniel C. Higge
 Stephen R. Jenkins
 Jarom D. Kesler
 Steven P. Ruden, Ph.D.
 S. Michael Yoon
 Collin B. Heideman
 Theodore G. Papagiannidis
 Nicholas M. Zovko
 Azadeh Agahi
 Nicholas D. Alchison
 Adam J. Gilbert
 Kimberly J. Miller, Ph.D.
 David A. Petrini
 Bryan W. Wahl, M.D.
 Thomas Y. Yee
 Phillip A. Bennett
 Kenny Qintal Wang
 Michael E. Erickson
 Ashley M. Schneider
 Agnes Juang, Ph.D.
 Nathan S. Smith
 Michael E. Hall
 Justin L. Sovich
 Soyoung Jung
 Jonathan E. Bachand
 Jared C. Bunker
 James W. Chang, Ph.D.
 Andrew J. Hall
 Joseph M. Kobzeff
 Ali S. Razzi
 Lance D. Smemo
 Jeremy R. Plorcc
 Terry K. Tullis
 Susan J. Wang, Ph.D.
 Timothy J. Goodson
 Frances L. Pat
 Joshua J. Stowell
 Douglas B. Espenschied
 Derek R. Bayles
 Kregg A. Koch

Of Counsel
 Louis J. Knobbe*
 Don W. Martens*
 James F. Lashak
 Jerry R. Soller
 Boris Zeldin

Japanese Patent Atty
 Katsuhiko Arai

Korean Patent Atty
 Mincheol Kim
 Heungsob Choi

Scientists & Engineers
 (Non-Lawyers)

Raimond J. Salenieks**
 Khuram Rahman, Ph.D.
 Che S. Cherebkin, Ph.D.**
 James W. Ausley**
 Nira M. Brand**
 Marina L. Gerdey, Ph.D.**
 Karen J. Lenker**
 Eric B. Ives, Ph.D.**
 Raymond D. Smith, Ph.D.**
 Carl Wetherald
 Brent C. Moore, Ph.D.**
 Michael A. Maxton, Ph.D.
 Daniel K. Robertson**
 Neil S. Bartfeld, Ph.D.**
 Hoonan Song
 Karen W. Lai, Ph.D.
 Naoki Miki
 Katherine Denning, Ph.D.
 C. Clay Lee, Ph.D.**
 Victor C. Vasar, Ph.D.
 Lavanya G. Rau, Ph.D.

* A Professional Corporation
 † Also Barriers At Law (LLP) in many states
 ** U.S. Patent Agent
 †† Also Solicitor/Attorney at Law

RECEIVED
CENTRAL FAX CENTER

MAY 03 2007

MICRON.172A

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Ammar Derraa et al.
Appl. No. : 09/945,065
Filed : August 30, 2001
For : METAL SILICIDE ADHESION
LAYER FOR CONTACT
STRUCTURES
Examiner : Junghwa M. Im
Group Art Unit : 2811

CERTIFICATE OF FAX TRANSMISSION
PTO CENTRALIZED FAX

I hereby certify that this correspondence and all
marked attachments, are being transmitted via
facsimile to the USPTO centralized Fax No.
(571) 273-8300 on the date shown below:

May 2, 2007

(Date)

Total number of pages including this sheet: 3

Linda H. Liu, Reg. No. 51,240

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Examiner Im:

Pursuant to our telephone conference today, enclosed is a copy of the Appellant's Reply Brief in response to the Examiner's Answer dated July 29, 2005. This Reply Brief is identical in content to the Reply Brief the Applicant filed with the PTO on August 30, 2004 in response to the Examiner's Answer dated June 30, 2004. The Examiner's Answer dated June 30, 2004 is identical in content to the Examiner's Answer dated July 29, 2005.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 5/2/2007

By:

Linda H. Liu
Registration No. 51,240
Attorney of Record
Customer No. 20,995
(951) 781-9231

3720936
050207

-1-

RECEIVED
CENTRAL FAX CENTER

MAY 03 2007

MICRON.172A

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

| | | |
|----------------|---|------------------------------------------------------------|
| Applicant | : | Ammar Deraa et al. |
| Appl. No. | : | 09/945,065 |
| Filed | : | August 30, 2001 |
| For | : | METAL SILICIDE ADHESION LAYER FOR CONTACT STRUCTURES |
| Examiner | : | Junghwa M. Im |
| Group Art Unit | : | 2811 |

ON APPEAL TO THE BOARD OF PATENT APPEALS AND INTERFERENCES
APPELLANT'S REPLY BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Applicant, in the above-captioned patent application, reply to the Examiner's Answer mailed June 30, 2004. This Reply Brief is filed in triplicate.

REPLY

In the Examiner's Answer, the Examiner states that Appellant mainly argues "none of the references teach an integrated circuit contact structure having a metal silicide adhesion layer that functions both as an adhesion layer and a refractory metal silicide layer." The Examiner took the position that since Taguwa shows a titanium silicide layer formed between a titanium layer and a titanium nitride layer, Taguwa teaches a titanium silicide layer is a refractory metal silicide layer that also serves the function of enhancing adhesion between the titanium and titanium silicide.

Appellant respectfully disagrees with the Examiner's characterization of Appellant's main argument. Appellant would like to clarify its argument by emphasizing that none of the prior art references disclose an integrated circuit having a metal silicide adhesion layer that functions both as an adhesion layer and a refractory metal silicide layer *which serves to improve the contact at the interface between the metal and semiconductive active areas.*

RECEIVED
CENTRAL FAX CENTER

MAY 03 2007

Appl. No. : 09/945,065
Filed : August 30, 2001

While Taguwa discloses a titanium silicide layer, Appellant notes that Taguwa's titanium silicide layer is interposed between the titanium and titanium nitride layers and therefore does not contact the semiconductor substrate. As such, Taguwa's titanium silicide layer could not possibly serve the function of a refractory metal silicide layer that improves the contact at the interface between the metal and semiconductive areas.

Appellant further submits that there is no motivation to combine the teachings in Taguwa with Thakur to form a structure having a metal silicide adhesion layer that also functions as a refractory metal silicide layer used to improve the contact between the metal and semiconductive active areas. Taguwa is directed to a contact structure having layers of titanium silicide interposed between titanium and titanium nitride to absorb thermal stress therebetween. Thakur discloses forming a refractory metal silicide layer in the contact area using conventional dopant implant processes. Appellant submits that it would be counter-intuitive to form an additional layer of metal silicide directly on the refractory metal silicide already formed in the contact region in Thakur.

In accordance with the above remarks and the remarks made in the Appeal Brief filed October 20, 2003, the Appellant respectfully submits that the invention defined by Claims 1-4 and 6-20 is not made obvious by Taguwa, Thakur, or a combination of the two, and that these claims are in condition for allowance.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 5/2/2007

By: 

Linda H. Liu
Registration No. 51,240
Attorney of Record
Customer No. 20,995
(951) 781-9231

R:\DOCS\VLHL\HL-7710.DOC:kmb
082004